George's PINK PAGES

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Answers to Repeated Questions

There are certain questions that are asked at any meeting of beekeepers that you attend and they are asked not only by beginners and novices, but sometimes by someone who has had some colonies for several years. As in most cases, these questions come from someone who has just not paid enough attention to the studies of bee biology or bee behavior, and it "shows" in their lack of ability to "keep" bees or make a prosperous honey crop year after year. Every "true" beekeeper should be able to answer these oft repeated questions with ease, but in case you have forgotten, here are some of those questions and the answers to them.

Question #1 : This summer, suddenly I found my colony with little brood and queenless, so I hurriedly bought a new queen and introduced her, but my bees killed her. WHY?

Although you did not see a swarm or think there are less bees now than when the colony was queen-right, the absence of brood and no queen to be found is a strong indication that the colony swarmed. A swarm is planned ahead by the bees. It just does not happen on the spur of the moment. Bees stop feeding their queen, reducing her weight so she can fly, a week or so before the swarm, and this results in the laying of very little brood. The swarm may take place 3-4 days before a virgin queen emerges from her queen cell. After emergence, the virgin queen wanders about the colony for several days and even takes a few 5 minute orientation flights around her hive to get the "lay of the land".

She does not become sexually mature until 6-7 days after emergence, and hence does not take her nuptial flight to the drone gathering area until the first nice, warm after- noon after she is 6 days old. After breeding with 5-15 different drones (we used to believe it was just one), she returns to the hive and lays the first few eggs 3 days later. If you now count the number of days between the day the old queen stopped laying eggs and the day the new queen started to lay eggs, you come up with a number like 18-25 days. Further, since some beekeepers have trouble seeing "open brood" and only see CAPPED brood, add another 10 days making a total of 28-38 days. Further, a virgin queen is very difficult to see, since her abdomen is not large and elongated by holding the eggs she will later lay, so she almost looks like just another worker bee.

You have opened your colony, and finding no evidence of a laying queen, introduced a new queen, and she was killed. Of course she was killed, because the bees already had a new queen (maybe still a virgin) in their colony and did not need some "foreigner". You could have saved $15 dollars spent on a replacement queen, by TESTING the colony to see if it was queenless by just adding a frame of worker eggs or 1 day old larvae from another colony to the brood chamber of the suspect colony, wait 2-3 days and inspect whether the bees have started to build EMERGENCY queen cells on the face of the new frame. If new emergency cells are found, your colony was queenless and now they are raising a new emergency queen to replace the old queen; but if no emergency cells have been started, the bees are "telling" you that they have a queen and you just have not seen her yet, so new brood will start to be evident in 2-3 weeks.

Question #2: My bees just won't build comb out of foundation, and even eat holes in the foundation. WHY?

Building comb is hard work, requiring lots of young bees (12-18 days old), and the bees have to EAT about 8 pounds of honey to make 1 pound of comb! Bees don't waste their time and energy to do this hard work unless there is an immediate NEED for drawn comb! What is immediate need for comb? Cells for the queen to lay brood, or cells to store nectar which will be made into honey. Hence, there must be a nectar flow present or maybe an ARTIFICIAL nectar flow (1:2 or 1:1 sugar syrup, not heavy 2:1) for bees to draw

foundation into drawn comb! Even if you do not want more bees, collection of a swarm is the greatest comb builder you can find, because those bees HAVE TO BUILD COMB IN A BIG HURRY so the queen has cells to lay in and storage space for nectar to feed these new bees. Never look a GIFT HORSE in the mouth! Always place a new swarm on found - cation with lots of thin sugar syrup.

Question #3: Is plain sugar a good winter feed? Some say use honey only, and others use high fructose corn syrup because it is cheap, and some have used soft drink sweetner, old Jello sweetner or chewing gum sweetner. WHAT IS THE BEST FEED MATERIAL?

Plain "old table" sugar, which is over 95% sucrose is considered the best and safest winter feed of ALL feeds, including honey. Plain sugar is converted to honey as the bees store it, and plain sugar is bee disease free, and has no indigestible contaminants that might occur in honey from unknown sources or any of the manmade sweetners. Plain sugar will never give a bee dysentery, which often occurs to bees during a long winter confinement and fed on disease free honey or any of the manmade sweetners. Maybe you have forgotten that all nectars are primarily made of water and SUCROSE (plain old table sugar), and this is what the bees bring home to be converted into the two simpler sugars, fructose and glucose, that make up honey.

Question #4: What is the "secret or trick" to have lots of FORAGER AGE bees ready at the time of a major nectar flow? For example, I have placed colonies of my bees on the same lot as George Imirie's bees, but his bees always produce much more honey than mine.

WHY?

There is a 40 day period of time between the time an egg is laid and the worker bee it produces is of foraging age (over 19 days old)! Hence, if your major honey flow starts about May 10th, the egg that produces a forager age bee who can forage on that nectar flow has to be laid before April 1st, and hence you want your queen to be heavily laying eggs during all of MARCH. However, March is still pretty chilly, and hence, lots of nurse bees are needed then to keep the cluster warmed to 95¡ for the queen to lay eggs. By starting to feed 1:1 sugar syrup as a egg laying stimulant for the queen from a gallon jar directly over the bee cluster in early February, you get a sizable number of new bees emerged in early March to expand and warm the bee cluster so the queen can lay more strongly during all of March that will produce a large number of forager age bees ready to gather the nectar of a major nectar flow that begins about May 10th. Of course, to prevent swarming, the brood chamber frames must constantly be REVERSED during this entire period so that the queen essentially always has open laying space ABOVE her. Having a "ton" of bees in a colony is NOT the answer to your question. The "trick" is to have lots of FORAGER AGE bees at the correct time, and the "secret" of that is to start early feeding of stimulated feed, 1:1 sugar syrup, right on top of the cluster, and

REVERSE brood chambers constantly as needed to prevent swarming.

Question #5: Sometimes my bees have superseded a perfectly fine, high production queen. WHY?

Maybe you answered your own question when you said "high production" queen implying that she laid large quantities of worker bees resulting in a high honey yield. You also said "perfectly fine". To who? You, or the bees? As cruel as it may be, knowledge of bee biology and bee behavior will clearly point out to you that worker bees will destroy their own mother and raise a new queen if they are dissatisfied with the performance of their mother. Maybe the queen has been injured (even by a careless beekeeper), or was poorly bred so her egg laying ability has fallen off, or has some disease, or it is just her "time" to die. We only know that worker bees anticipate and EXPECT certain high standards of egg laying from a queen, and if she cannot reach those standards, the bees will supersede her with a new queen. Just because you have heard stories of some queen laying 3000 eggs/day, and queens still performing well in their 3rd year and not being superseded doesn't necessarily mean that these performances actually happened, or these statements have been observed by scientists who were using a MARKED queen and daily removing all laid

brood for counting. Scientists have estimated (not proven) that as many as 60% of all queens live no longer than 16 months. Why 16 months? Emerged (born) in April, year 1990, performed well during all of 1990 and spring of 1991, but was superseded before September 1991, a period of 16 months. We do know that queens "born" in the EARLY spring might not be as well prepared for a long productive life as a queen born in the summer, because her entire prenatal care has been "aimed" at an early laying date by the queen breeder. Further, who is it that can say without fear of contradiction that the laying of approximately 200,000 eggs per year, one at a time, doesn't "take something out of you", so you are not equally prepared to lay another 200,000 eggs the following year?

Bee scientists have clearly proven that a first year queen is superior in all respects to a second year queen, and far, far, superior to a third year queen. Most important of these differences is the first year queen rarely swarms when compared to older queens, and this is why so many honey producers requeen EVERY year and sometimes twice in a year. Queen substance, 9-ODA (9-oxo-2-decenoic acid), all though first identified in 1960 has been heavily researched in more recent years, and this pheromone which inhibits queen rearing to produce swarms by the workers exists at its highest point immediately after breeding and reduces in volume a little each day in the life of a queen. Hence, not only is a very young queen capable of laying many, many eggs, but she also produces enough queen pheromone that swarming is greatly reduced when compared to an older queen.

Question #6: There seems to be so many different methods of requeening. Are there some parameters that should be avoided and others to be utilized for almost fool-proof requeening? Is there a "best" system?

Although some have observed two queens in the same hive, usually after supersedure, this is unusual, because 99% of the time, honey bees will not tolerate more than one queen in the same brood chamber. Two queens, separated by a double screen and each occupying a separate brood chamber is a totally different subject. The makeup of a colony as ordained by nature is ONE queen, maybe 500-800 drones, and up to 60,000 worker bees. There are some parameters to be considered relative to requeening. The favorite food of a worker bee is NECTAR, not honey which is only a stored winter food for survival. Hence, bees are happy and contented during a nectar flow, but grumpy during a dearth of nectar. Bee management of the brood is easy for them when the weather is warm, but becomes difficult as the temperature cools. As a worker bee ages, its tasks, responsibilities, and capabilities change. A bee less than 19 days old, is a house bee whose principle jobs are feeding the bee larvae, comb building, ripening nectar into honey, grooming the queen, cleaning and polishing cells for the queen to lay eggs in, housecleaning, temperature regulation of the hive, and guard bee; but to sum up all her duties, this "house or nurse bee" primarily takes care of the queen and her brood. The jobs of the bee older than 19 days is foraging for nectar, pollen, propolis, or water; and has little to do with the queen or caring for the brood. Hence, young nurse bees are desirable to be with the new queen when requeening, but avoid the forager age bees. Since bees principle sense is olfactory (sense of smell) rather than sight and the inside of the bee nest is very dark, the new queen has to be pro- tected upon introduction so most of the bees can smell her and touch her to aid them to "warm up to the new queen" rather than killing this new foreigner with the odd smell. It is most helpful if the weather is warm, sunny, with a nectar flow that keeps the older foraging bees outside foraging and the house bees inside happily doing their predestined jobs rather than the weather being cool, rainy, windy, or a dearth of nectar where "everybody" is miserable and discontent. Unlike humans, the bee is extremely dependent on the weather. The most important job of the queen is egg laying, so a laying queen is far easier to introduce to new bees than a non-laying queen.

Based on that which is stated above, the best requeening procedure is to introduce the new queen into a nucleus of only nurse bees, which is being continuously fed 1:1 sugar syrup, let her start laying some eggs for several days, then place the nuc over a double screen on top of the colony to be requeened and leave it undisturbed for 4-5 days and continue the 1:1 feeding. Then, find the old queen and destroy her, remove the double screen 24 hours later, and the colony is requeened successfully about 99% of the time.

For FALL REQUEENING, which I strongly prefer over spring requeening, see an old PINK PAGE entitled "Imirie's Almost Fool Proof Requeening".